

America's Fascination With Nutrition

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American ideas about nutrition and health are rooted in centuries of western scientific and philosophical thought. When European settlers arrived in the New World they encountered a vast and potentially bounteous terrain. Faced with these conditions, they gradually began to modify the way they thought about food and its effects on human life and well-being.

As historian Harvey Levenstein has made clear in two pioneering books, Americans have long been fascinated with nutrition and, because of that, have produced a fascinating nutritional history, replete with interesting, visionary, and eccentric characters. Some writers, such as Julia Child, wish that we could be more relaxed about food and eat in a sociable and enjoyable European style, but historical forces shape eating and nutrition just as they do politics and economics and cannot be overturned by wish or fiat. Americans have had to fight a unique battle of food abundance in which American optimism, faith in science, willingness to experiment, and a bit of zaniness all have played a part.

European and American Experiences Contrasted

By the end of the 11th century in Europe, when food had become more abundant after the chaos of the "Dark Ages," people began to believe that eating well could lengthen life. The most famous medical diet of that time was the *Regimen Santitatis Salernitanum*, a product of the medical school in Salerno, Italy. Consistent with the medieval theory of bodily humors, which in turn was based on the Greek ideas of Hippocrates as transmitted through Arab commentaries, the *Regimen* recommended that food be balanced with character dispositions. Thus, hot-blooded men were advised not to eat spices or onions. The *Regimen* circulated for many centuries in Europe, but fortunately most people did not follow its unbalanced recommendations or mortality rates would have been much higher than they actually were.

Europeans, although they discovered many of the basic concepts of nutrition such as calorie, protein, fat, and carbohydrate, generally have not ruminated much about eating for health and, with one pronounced exception (see box), have been more inclined to eat for enjoyment and sociability. In recent years, however, globalization and the advent of genetically and hormon-

ally modified food have caused Europeans to examine more carefully the safety and nutritive value of their food supply.

Concern with food and nutrition in the United States certainly has been more long-standing and consistent than in Europe, with many Americans seeing food as the royal road to health, sanity, longevity, and more. In the words of Charles Tart, a psychologist at the University of California (Davis), "Americans . . . have the delusion that we can eat our way to enlightenment. Just a pure enough diet." No other country has had our variegated history of nutritional theories, diets, food fads, and, more recently, eating disorders.

There are several reasons for this peculiar American relationship to food and nutrition. The abundance of our food supply, which has always been reflected in our low food prices, has been both an opportunity and a difficulty. On the positive side, starvation and malnutrition have never been major problems in America. In the days when the overwhelming majority of people engaged in hard physical labor, Americans, fortified by the largest intake of meat and protein in the world, were taller and more physically robust than citizens of most other countries. But when Americans became more urbanized and sedentary, food abundance

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became problematic, requiring us to find ways to limit and modify our consumption. On the other hand, countries without our food bounty have not been forced to curb their appetites as we have. Consumption flows more naturally from tradition and availability than from a need to constrain.

The United States was also the first continental market where food products could be shipped hundreds and then thousands of miles without barrier. Market unification greatly enhanced specialization and productivity. It also led in the 20th century to economic conglomeration, standardization, mass marketing, and the addition of chemicals to the food supply in the form of synthetic fertilizers, herbicides, additives, and preservatives. Consequently, Americans sometimes have felt further removed from the sources of their food supply than citizens of other countries. With alienation came concern and anxiety.

Finally, Americans' abiding interest in nutrition is linked to our frontier-honed ethos of self-improvement, perfectibility, optimism, and faith in the power of science to solve problems. Of course, many Americans, perhaps a majority, have little concern about nutrition but the national tone is set by those who do.

It is also interesting to note that upsurges in popular interest in nutrition often have coincided with times of political reform and change: Grahamite vegetarianism during the Jacksonian "reform era" of the 1830's; the "New Nutrition" of the 1890's and early 1900's paralleling Progressivism's emphasis on governmental and industrial reform; and the Organic-Natural-Holistic movement of the late 1960's and early 1970's as part of the counter-cultural, antiwar, and ecological ferment of that period. Today, an active concern about food safety and nutrition has become thoroughly and, perhaps, permanently embedded in American society.

Graham Sounds the Alarm

In the 18th century, food was produced and consumed almost entirely within very local areas. By the early 19th century, the industrial revolution was beginning to affect what and how Americans ate, especially in the growing cities. Canal barges, wagon roads, and railroads (beginning in 1829) took products longer distances. Bread, once all dark and heavy, was being bolted (processed) to remove some of the bran and lighten its color and weight. Sylvester Graham (the eponymous inspiration of the Graham Cracker) was one of the first to inveigh against some of the effects of industrialism.

Born in 1797, Sylvester Graham was a sickly 17th son who grew up to be a temperance minister. By 1830, he had turned his attention to food, claiming that gluttony rather than hunger was the greatest dietary evil afflicting humankind. Though he never acknowledged his influences, he was inspired by the vitalist theories of the Frenchman Francois J.V. Broussais, who believed that fibers in the stomach and intestines could be overstimulated and that negative impulses could then be transferred via the nerves to other

parts of the body. According to Graham, the vital economy of the body involved a system of waste and repair of the vital force. A healthy diet allowed a balance to be struck between loss in the digestive process and renewal from the energy in the ingested food. Excessive eating could upset this balance as could meat, alcohol, and sex. Thus, he advocated vegetarianism, temperance, and sexual continence.

Experiments in the late 1990's suggesting that well-fed mice experience DNA damage that slows tissue repair and speeds up aging may soon give a modern, genetic cast to Graham's ideas. Graham was certainly a strange man for his time or even ours, but he was also something of a visionary, who anticipated in broad outline several important ideas in modern nutrition.

There was also a strong strain of religious romanticism (some might call it Puritanism) in Graham's thought that has appeared throughout the history of Americans' attitudes towards food. Graham knew nothing about vitamins, but in bolted bread he found a symptom of humanity's falling away from divine and natural laws, which he believed were the same. Over a 100 years later, counterculturists of the 1960's would also place great emphasis on

German Advances in Environmental and Nutritional Sciences

In the 1930's and early 1940's, German scientists and medical researchers established epidemiological links between cancer, smoking (including "passive" smoking leading to the creation of smokeless offices and restaurants in many German cities beginning in 1938), asbestos, radon, and other environmental pollutants. They warned against excessive meat consumption, food additives, and preservatives, and promoted the healthful

values of fibers, fruits, and vegetables.

Germans were encouraged to become healthy not for personal reasons, but so they could be useful to the National Socialist state. After Germany's defeat in World War II, this research, which was several decades ahead of the rest of the world, ceased and was then forgotten. Its history was resurrected in 1999 by Pennsylvania State University historian Robert Proctor.

natural bread and “naturalness” in general without, however, carrying over his ascetic attitudes towards the pleasures of table and bed.

Graham achieved prominence from his lectures in 1831 when cholera, accompanied by severe gastrointestinal symptoms, made its first appearance in the United States. His lectures in Boston and New York were well attended by both acolytes and hecklers. The latter scorned his self-denying program with its apparent equation of food with death.

Grahamism flourished in the 1830's and 1840's and converted, at least temporarily, such people as Henry David Thoreau, fiery revivalist preacher Charles Finney, and Joseph Smith, founder of the Mormon Church. Various utopian socialist communities, forerunners of the 1960's organic commune movement, adopted some of his ideas and a few of his followers set up the world's first health food store to sell unbolted “Graham flour,” several decades before the appearance of the famous crackers.

When Graham died in 1852, the movement was on the wane. In Germany, however, the chemist Justus von Liebig was separating food into its component proteins, fats, and carbohydrates, thus laying the foundation for the modern study of nutrition. Forty years later, the United States would be the first country to carry a message of nutrition to its general population.

New Nutritionists Preach to the Working Class. . .

After the Civil War, Grahamism was all but forgotten as the newly rich “Robber Barons” and the upper middle classes indulged on a grand scale. Everything was consumed conspicuously, including food. This was the era of “groaning” tables served from kitchens amply staffed with servant labor. Corpulence in men was not frowned on but was

considered a sign of success and well-being. Physicians wrote books for women instructing them on *How to Be Plump* so that they could achieve a state of “florid plumpness.” On the other hand, millions of new immigrants were paid factory wages that barely provided enough for basic needs.

W.O. Atwater, a professor at Wesleyan University and the first director of the U.S. Department of Agriculture's (USDA) Office of Experiment Stations in 1888, was the father of modern American nutrition. He built on the work of the pioneering German chemists and in the 1880's started publishing his tabulations of the fat, protein, and carbohydrate content of various foods.

The administrators of his Methodist university thought his work lacked significance and urged him to make it more relevant to contemporary social issues such as the poor living conditions of the working class and labor unrest. Having broken down food into its constituents, he realized that in terms of proteins, which were essential for performing work, meat and beans were roughly equivalent. Workers in the 1890's spent 50 to 60 percent of their wages on food, and if they could be persuaded to cut back their consumption of meat especially and substitute beans and other cheaper sources of protein, they could save money, live a little better, and be integrated more prosperously and peacefully into the new industrial economy.

Atwater was helped in this effort by Boston businessman Edward Atkinson, who invented the slow-cooking “Aladdin Oven” in the late 1880's, and by two early women scientists, Mary Hinman Abel and Ellen H. Richards, who founded the “New England Kitchen” in Boston in 1889. Establishing the basis for a new profession of “home economics,” Abel and Richards, who used an “Aladdin Oven” and received help and encouragement from

Atkinson, constructed practical menus containing, among other things, bean and lentil substitutes for meat. Their attempts to disseminate them among the working classes were unavailing. Immigrant workers wanted to Americanize, and that meant, among other things, eating meat and not a lot of beans, which were associated with the poor people's diets of the Old World.

The advocates of the “New Nutrition,” so-called by Levenstein, also did not understand the nutritional value of foods such as eastern and southern European stews and pastas because they mistakenly believed that foods were assimilated much more completely when they were eaten separately and not all mixed up in one dish. The New Nutritionists of the 1890's also did not know about vitamins and thus recommended that workers cut back on



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Credit: Agricultural Research Service, USDA

fruits and many vegetables, especially popular among Italian immigrants, because they were not protein rich and thus not suited for strenuous industrial labor. According to Levenstein, New Nutritionism was a program of social reform that was based on incomplete knowledge that, at least as it was applied to factory workers, dismissed generations of nutritional wisdom embodied in immigrant diets. Fortunately for the workers and the future of a diverse American cuisine, New Nutritionism's recommendations were ignored.

. . . But Reach the Middle Class

The New Nutritionists did, however, find a receptive audience among the middle classes searching for relief from "dyspepsia," a term that subsumed a variety of gastrointestinal ailments that had been on the rise in the last decades of the 19th century. It also responded to the servant crisis of those same years. It was becoming more difficult to employ immigrant girls as house servants, and middle-class families were finding it harder to keep up with the upper classes by maintaining lavish styles of dining and entertaining. New Nutritionism, with its message of simpler and smaller, gave middle-class families license to get off the social merry-go-round.

Middle-class housewives began to learn the vocabulary of protein, fat, and carbohydrate and that some foods with more calories could make them "plumper," a condition that was no longer so esteemed by the turn of the century. In the next decade, the ideal of the "plump" woman would be supplanted by the much slimmer "Gibson Girl" and then by the waistless "Flapper" of the 1920's. Men's body ideal also began to change. The 330-pound William Howard Taft (President from 1909 to 1913) was the last "fat"

man to occupy the White House. He was succeeded by Woodrow Wilson, the gauntest President since Abraham Lincoln. No future President would require, like Taft, a special tub in which to bathe.

This was also the era of Dr. John Harvey Kellogg, who with his brother, William, invented "Corn Flakes," which changed American breakfast habits by substituting grains for meat. For the most part, his ideas were warmed-over Grahamisms but he particularly fixated on the terminus of the digestive system, blaming many illnesses on the proliferation of bacteria in the colon, called "auto-intoxication" by Kellogg.

The most extreme solution to the problem of "auto-intoxication" came from Horace Fletcher, a wealthy American businessman retired in style in a 13th-century palazzo on Venice's Grand Canal. Fletcher advocated a drastic reduction of food intake by "thorough mastication," which required silently chewing each mouthful at least 100 times.

So that they might be funded by him, researchers pretended to take seriously Fletcher's theory that an unknown mechanism at the back of the mouth actually ingested food. They were impressed, however, that his feces, which he sent to them through the mails, were tiny and odorless, thus demonstrating the apparent absence of "auto-intoxication." They were also amazed that the 53-year-old Fletcher could physically outperform most 21-year-old athletes on half to two-thirds of their protein intake. "Fletcherism" as a fad soon died out, but he had convinced many nutritional scientists that eating less food and protein was, indeed, beneficial, as claimed by the proponents of New Nutritionism.

New Nutritionists received their biggest boost from World War I. The drive to voluntarily conserve beef and wheat by substituting beans and other grains was very effec-

tively led by Herbert Hoover. Using advertising techniques and personnel, his agency, the Food Administration, convinced many Americans to simplify their diets.

Newer Nutritionists Discover Vitamins

Most human vitamins were discovered during the 1910's and 1920's, ushering in the era called the "Newer Nutrition" by historians. These discoveries meant that fruits and many vegetables once considered relatively unnecessary were now very important and that milk, formerly children's food only, could, when enriched with vitamin D, become an adult drink as well.

Vitamins were a boon to food companies seeking ways to differentiate their products from those of competitors. Cereals, bread, milk, and other products all claimed to be vitamin enriched (with liquids or powders) and until the laboratory synthesis of vitamins permitted their incorporation in pills in the late 1930's, enriched food was the only way to get extra vitamins. Vitamin enrichment by food producers was, however, also a tacit admission that their food needed enriching because it had lost vitamins during processing, but by this time, many nutritionists and home economists worked either directly or indirectly for food companies and did not call attention to these facts.

During the late 1930's, many people were gripped by "vitaminomania," which did not return again in such force until the early 1970's. At the end of the 1930's, the medical profession, joined by food producers, combated the new mania for pills, believing that people would unwisely conclude that they could self-medicate, thus touching off a battle over the efficacy of dietary supplements that continues today.

As World War II loomed in Europe, some critics, in a manner reminiscent of Sylvester Graham,

began to complain about the vitamin deficiencies of processed food, particularly bread, and they linked such food to the dismal health status of many new military recruits. In 1940 and 1941, physicians at Mayo Clinic found that teenagers placed on a diet low in thiamine (vitamin B1) became surly and uncooperative. As a result, the Federal Government had millers restore thiamine (dubbed the "morale vitamin") into bread flour. In 1941, the Federal Government established the first Recommended Daily Allowances (RDA's) for important nutrients and created the concept of seven basic food groups (reduced to four in 1956). However, when the war began, the concern over vitamins dissipated, and Americans spent most of their time negotiating through and around the maze of rationing regulations.

The late 1940's and 1950's were relatively "silent" years for nutrition as well as for politics. After winning the war, there was much celebration about America being "the best fed nation on earth." These were also the "golden" years for food chemistry, with hundreds of additives and preservatives coming onto the market. These innovations were applauded by both experts and a general public looking for convenience. Only the 1958 Delaney Amendments to the Pure Food and Drug Act, requiring the Food and Drug Administration (FDA) to test new additives for safety, marked a departure from this trend of nutritional complacency.

'Harmful' Foods Fall Under Suspicion

The discovery in 1959 that eating polyunsaturated fats might lower serum cholesterol and further evidence in 1961 linking cholesterol with arteriosclerosis brought an end to the quiet years. Reports about cholesterol and heart disease had appeared in the 1950's but had been

ignored. This time, they reached the general public, and some food producers, realizing the potential for a new marketing strategy, began to offer products that they claimed were "low" in cholesterol. By 1962, almost one-fourth of American families told survey takers that they had changed their diets as a result of the cholesterol scare.

With the exception of metabolic diseases such as diabetes, this was the first time that American science had linked a specific food element to a specific disease. It was also the opening round of what might be called the campaign for the Selective Nutrition—that is, not just limiting intake (New Nutrition) or eating vitamin-enriched foods (Newer Nutrition) but reducing drastically the intake of foods with specific "harmful" elements and thus negating their effects. It was also a blow to the concepts of balanced diet and "four basic food groups," for here was a harmful element (cholesterol) that was strongly associated with one of the basic groups (milk products). A few years later, meat products, another basic food group, would come under suspicion because of the presence of saturated fats, another contributor to heart disease. Eventually general concern over fat, saturated fat, and cholesterol in the diet led USDA in 1992 to replace the food groups with the Food Guide Pyramid.

Rachel Carson's *Silent Spring*, published in 1962, contained evidence that the insecticide DDT was killing bird populations. Although Carson's book initially affected the public's awareness of wildlife species and led to the banning of DDT, it eventually helped stir concern about the possibility of synthetic chemicals reaching humans through the food chain and about food chemicals in general. Three years later, Ralph Nader, a young lawyer, published *Unsafe at Any Speed*, launching the modern consumer movement. By the early

1970's, Nader and his youthful Raiders were investigating many aspects of corporate America. Chemical food additives and preservatives with their cancer-causing potential came under their repeated scrutiny.

Executive Branch agencies in the Federal Government, reluctant to antagonize agricultural and producer groups, were quiet throughout the 1960's and 1970's. Independent organizations, such as the Heart Association and the National Cancer Institute, were much more active and funded many studies on food additives and ingredients.

Another effect of the Selective Nutrition campaign was the revival of the dormant appetite for vitamins. Faced with conflicting opinions about what to eat and what to avoid, Americans responded by taking more vitamins as insurance against uncertainty. According to a study by National Analysts, Inc., by 1969, over 50 percent of Americans were taking vitamin pills and some were beginning to take mega-vitamin supplements spurred on by claims that vitamin C could prevent or palliate a variety of illnesses and that vitamin E could enhance vitality and sexual performance. FDA attempted to exercise regulatory control over vitamins, but in 1973, Congress, after having received more letters favorable to vitamins than about the ongoing Watergate investigation, passed the so-called Vitamin Amendments to the Pure Food and Drug Act, which severely curtailed FDA's power over vitamin regulation.

Sixties' Hippies Stir the Pot

Paralleling and influencing Selective Nutritionism was the counter-cultural organic farming movement. Since the 1950's, J.I. Rodale had published *Organic Gardening and Farming*, the only source of information on the subject. When his ideas and those of other health food advo-

cates met those of the so-called psychedelic “hippies,” the countercultural organic commune was born.

Motivated by ecological and anti-war concerns, this movement's goals transcended individual health. It saw growing food organically, without synthetic chemicals, as a new way of relating to the earth as a whole—part of the ideal of “treading lightly on the land,” as formulated by poet-guru of the movement and former Beat Generation bard Gary Synder. Organic whole-grain bread was especially symbolic for the organic communards, as it had been for the Grahamite utopian communities of the 1840's, while “white bread” became an epithet for everything they considered immoral, exploitative, and unnatural.

By the mid-1970's, communal organic farming was declining (individual organic farming was on the rise) but its emphasis on “natural” food had influenced the broader society by stimulating food companies to claim more “natural” ingredients in their products and by creating a market for “natural” supermarkets and speciality stores.

Nutrition Goes Mainstream

By 1977, when the Senate Nutrition Committee issued its *Dietary Goals for the United States*, the Selective Nutrition agenda was becoming national policy. Calling obesity a “national evil,” the Committee's report urged Americans to cut back on cholesterol, saturated fat, salt, and sugar. Its tone was so strong that, according to Levenstein, “even vegetarians and natural foods buffs would have to make dietary adjustments.”

In 1980, Federal agencies became more active when USDA and the Department of Health and Human Services jointly issued their *Dietary Guidelines for Americans*, which was based on the Senate's *Dietary Goals for the United States* and the 1979 *Surgeon General's Report on Health Promotion and Disease Prevention*. Two years later, the National Cancer Institute published *Diet, Nutrition and Cancer*, which expanded on the recommendations in the *Goals and Guidelines*, but added warnings about salt curing (including salt pickling), smoking, and nitrite curing. According to nutrition writer and biologist Elaine McIntosh, the 1980's was a period of “tremendous growth in the prominence of nutrition and dietetics. The word ‘nutrition’ was launched into the headlines more than in any previous decade.” Food companies took their cue from nutrition's mainstreaming and introduced more and more products that claimed to have less fat, fewer calories, and lower cholesterol, while at the same time providing more nutritional values such as fiber, vitamins, and minerals.

Selective Nutritionism remained the reigning paradigm in the 1990's but in recent years has acquired a slightly different accent. Researchers are now discovering more foods and drinks that may have very specific beneficial effects (for example, tomatoes, foods with calcium, and red wine protecting against prostate cancer, colon cancer, and heart disease, respectively), and popular articles tout the benefits of “Ten Foods to Lengthen Your Life.” Research on animal genetics and nutrition is making fascinating connections between food and aging. In the relatively near future, this research could have practical applications for

humans. Or perhaps neuroscientists will have something to offer by unlocking the secret of the so-called “gourmand syndrome,” in which certain patients with injured right frontal lobes of the brain suddenly acquire an overriding taste for fine food. In the meantime, we may continue to discover more foods that can possibly protect against specific diseases or slow the aging process and thereby allow Americans to eat more enjoyably and with less guilt and anxiety.

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